AS 461

SAW Fluxes

SAW Basic and Semi-basic Fluxes

AS 461 is an agglomerated aluminate-basic type flux for the welding of general structural steels, boiler and pipe steels, as well as fine-grain structural steels. The welding flux produces a medium silicon and manganese pick-up and is therefore used in combination with the wire electrodes AS 35 and AS 40A. AS 461 is suitable for twin-wire, tandem and multi-wire welding using the single layer or multi-layer technique. For higher level of toughness, the AS 40A wire electrode is recommended when welding from both sides in one pass or when welding one-sided with the single layer technique. The finely rippled bead surface and the good slag detachability make AS 461 perfectly suited for fillet welds. Welding AS 461 with SUBCORED 31HD should be limited to medium wall thickness and fillet welds. AS 461 can be welded on DC and AC up to 1000 A with the single-wire technique.
Damp flux should be re-dried at 300-350°C.
Grain size according to EN-ISO 14174: 2-16.

Semi-basic agglomerate flux for welding mechanically stressed structures, pressure vessels, pipelines and fine grain steels. Metallurgically neutral. Used with type ETC AS1 ETC AS2 ETC ASH3 wires. 25 kg. plastic bag

	Classification	
	EN ISO	14174: S A AB 1 67 AC H5
AS 26	EN ISO	14171-A- S 35 2 AB S1
AS 35	EN ISO	14171-A- S 42 3 AB S2
AS 36	EN ISO	14171-A- S 42 4 AB S4
AS 37LN	EN ISO	14171-A- S 42 4 AB S3Si
AS 40	EN ISO	14171-A- S 50 3 AB S4Mo
AS 40A	EN ISO	14171-A- S 46 2 AB S2Mo
AS 48	EN ISO	14171-A- S 42 2 AB S2Ni1Cu
AS 67	EN ISO	14171-A- S 50 4 AB SZ
AS 26	AWS	A5.17: F6A2-F6P2-EL12
AS 35	AWS	A5.17: F7A2-F7P4-EM12K
AS 36	AWS	A5.17: F7AP4-EH14
AS 37LN	AWS	A5.17: F7A6-F7P6-EH12K
AS 40	AWS	A5.23: F9A2-EA3-A3
AS 40A	AWS	A5.23: F8A2-F8P2-EA2-A2
AS 48	AWS	A5.23: F7A2-EG-G
AS 67	AWS	A5.23: F8A4-EG-G

Approvals

	ABS	BV	CRS	DB	DNV	GL	LRS	MMI	RINA	TÜV
AS 35	3YM-2YT	A3M-3YM-A2 T-2YT		●	IIIYM-IIYT	3YM-2YT	3YM(F)-2YAH5(1 side		3YDM- 3DM -2YT -2T	●
AS 36				●	IV Y40 Fillet					●
AS 40A	3YM-3YT-3YM(F)-3Y(1s	A3TM-A3YTM	3T- 3YTM - 3Y(F)	IIIYMT	3YTM	3T-3YM-3YT		3YDM-3YT-3Y40 T- 3Y40		
AS 67	3Y (1 side)	A3YM (1 side)	3YM (1 Side)	IIIYM (1 Side)	3YM (1 Side)	3YA-H5 (1 Side)	AS-A1 / AS-13	3YU (1 Side)		

CE

Flux Main Components

CaO + CaF2 + MgO	39 %
Al2O3 + TiO2 + ZrO2	30 %
SiO2	20 %
MnO + FeO	9 %

Boniszewski Basicity 1.3

Chemical analysis (Typical values in %)

		C	Mn	Si	Ni	Mo	Cu
All weld metal	AS 26	0.05	1	0.4	-	-	-
All weld metal	AS 35	0.05	1.5	0.6	-	-	-
All weld metal	AS 36	0.05	1.9	0.6	-	-	-
All weld metal	AS 37LN	0.07	1.7	0.7	-	-	-
All weld metal	AS 40	0.06	1.9	0.6	-	0.5	-
All weld metal	AS 40A	0.07	1.5	0.6	-	0.5	-
All weld metal	AS 48	0.07	1.5	0.6	0.7	-	0.5
All weld metal	AS 67	0.09	1.5	0.3	0.95	0.2	-
All weld metal	SUBCORED 31HD	0.07	1.7	0.4	-	-	-

All-weld metal Mechanical Properties

	Heat Treatment	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation A5 (%)
AS 26	As Welded	≥ 355	440-550	≥ 24
AS 26	620°Cx1h	≥ 330	420-550	≥ 22
AS 35	As Welded	≥ 420	510-620	≥ 24
AS 35	620°Cx1h	≥ 400	490-650	≥ 22
AS 36	As Welded	≥430	510-640	≥ 22
AS 36	620°Cx1h	≥ 400	490-650	≥ 22
AS 37LN	As Welded	≥ 440	530-650	≥ 22
AS 37LN	620°Cx1h	≥ 420	510-650	≥ 22
AS 40	As Welded	≥ 540	630-720	≥ 19
AS 40A	As Welded	≥ 500	560-680	≥ 22
AS 40A	620°Cx1h	≥ 480	560-690	≥ 20
AS 48	As Welded	≥ 450	500-600	≥ 25
AS 67	As Welded	≥ 500	590-660	≥ 22
SUBCORED 31HD	As Welded	≥ 420	510-640	≥ 22
SUBCORED 31HD	620°Cx1h	≥ 400	480-650	≥ 22

All-weld metal Mechanical Properties - CV

	Heat Treatment	Impact Energy (J)			
		-20 °C	-30 °C	-40 °C	-50 °C
AS 26	As Welded	≥ 40	≥ 27		
AS 26	620°Cx1h	≥ 60	≥ 27		
AS 35	As Welded	≥ 100	≥ 60	≥ 27	
AS 35	620°Cx1h	≥ 100	≥ 60	≥ 47	
AS 36	As Welded		≥ 60	≥ 50	
AS 36	620°Cx1h		60	≥ 50	
AS 37LN	As Welded	≥ 90		≥ 70	≥ 27
AS 37LN	620°Cx1h	≥ 90		≥ 60	≥ 27
AS 40	As Welded	≥ 90	≥ 50		
AS 40A	As Welded	≥ 100	≥ 27		
AS 40A	620°Cx1h	≥ 90	≥ 27		
AS 48	As Welded	≥ 60	≥ 27		
AS 67	As Welded			≥ 50	
SUBCORED 31HD	As Welded	≥ 100	≥ 60	≥ 40	
SUBCORED 31HD	620°Cx1h	≥ 110	≥ 70	≥ 50	

Typical applications

	Materials
AS 48	ASME: EN: S235J0W; S235J2W; S355J0W; S355J2W; S355K2W
AS 40A	ASME: ASTM A285 Grades A, B, C; A106 Grades A, B, C; X60, X65 EN: 16Mo3, S(P)355-S(P)460, L245-L450
AS 67	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)460; L245-L485
AS 35	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360
AS 26	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360
AS 37LN	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360
AS 36	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360
AS 40	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360
SUBCORED 31HD	ASME: ASTM A131 Grades A, B, D, DS; A253 all Grades; A529 Grades 42, 50; A570 all Grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: S(P)235-S(P)355; L245-L360

Redrying	Current Conditions
300-350°Cx2-4h	AC; DC+

Packaging data

Packaging Type	PE
Weight (kg)	25
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